

Clean Version of Pending Claims 1 to 38

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1 (Once Amended). A programmable blood processing system coupled to a blood separation device comprising

a cassette containing first and second preformed, pneumatically actuated pump stations, more than two preformed fluid flow paths, and more than two preformed, pneumatically actuated valves in the fluid flow paths, and

a programmable pneumatic actuator to hold the cassette and selectively apply pneumatic force to the valves and pump stations in response to a control program to place the first pump station in flow communication with any fluid flow path and the second pump station in flow communication with any fluid flow path.

2 (Not Amended). A system according to claim 1 wherein the pneumatic actuator selectively applies both positive pressure and negative pressure to the valves and pump stations.

3 (Not Amended). A system according to claim 1 wherein the pneumatic actuator selectively applies positive pressure to close the valves and negative pressure to open the valves.

4 (Not Amended). A system according to claim 1 wherein the pneumatic actuator selectively applies positive pressure to expel fluid from the pump stations and negative pressure to draw fluid into the pump stations.

5 (Not Amended). A system according to claim 1 wherein at least one of the pump stations includes first and second pump chambers operating in tandem in response to the application of pneumatic force.

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6 (Once Amended). A programmable blood processing system coupled to a blood separation device comprising

a cassette containing first and second preformed, pneumatically actuated pump stations, more than two preformed fluid flow paths, and more than two preformed, pneumatically actuated valves in the fluid flow paths,

a programmable pneumatic actuator to hold the cassette and selectively apply pneumatic force to the valves and pump stations in response to a control program to place the first pump station in flow communication with any fluid flow path and the second pump station in flow communication with any fluid flow path, and

a controller having a first selectable control program to direct the pneumatic actuator to apply pneumatic force to the valves and pump stations to perform a first blood separation procedure,

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contd the controller also having a second selectable control program to direct the pneumatic actuator to apply pneumatic force to the valves and pump stations to perform a second blood separation procedure different than the first blood separation procedure, whereby the preformed pump stations, preformed fluid flow paths, and preformed valves in the cassette can accommodate different blood processing procedures.

7 (Not Amended). A system according to claim 6 wherein the pneumatic actuator selectively applies both positive pressure and negative pressure to the valves and pump stations.

8 (Not Amended). A system according to claim 6 wherein the pneumatic actuator selectively applies positive pressure to close the valves and negative pressure to open the valves.

9 (Not Amended). A system according to claim 6 wherein the pneumatic actuator selectively applies positive pressure to expel fluid from the pump stations and negative pressure to draw fluid into the pump stations.

10 (Not Amended). A system according to claim 6 wherein at least one of the pump stations includes first and second pump chambers operating in tandem in response to the application of pneumatic force.

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a cassette containing first and second preformed, pneumatically actuated pump stations, more than two preformed fluid flow paths, and more than two preformed, pneumatically actuated valves in the fluid flow paths, the system being configured to place a first pump station in communication with any fluid flow path and a second pump station in communication with any fluid flow path, an

a programmable pneumatic actuator to hold the cassette and selectively apply pneumatic force to the valves and pump stations in response to a control program to direct fluid flow through any selected pump station in either a forward direction between two valves, or a reverse direction between two valves, or an in-out direction through a single valve.

12 (Not Amended). A system according to claim 11 wherein the pneumatic actuator selectively applies both positive pressure and negative pressure to the valves and pump stations.

13 (Not Amended). A system according to claim 11 wherein the pneumatic actuator selectively applies positive pressure to close the valves and negative pressure to open the valves.

14 (Not Amended). A system according to claim 11

wherein the pneumatic actuator selectively applies positive pressure to expel fluid from the pump stations and negative pressure to draw fluid into the pump stations.

15 (Not Amended). A system according to claim 11

wherein at least one of the pump stations includes first and second pump chambers operating in tandem in response to the application of pneumatic force.

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16 (Once Amended). A programmable blood processing system coupled to a blood separation device comprising

a cassette containing first, second, and third preformed, pneumatically actuated pump stations, more than three preformed fluid flow paths, and more than three preformed, pneumatically actuated valves in the fluid flow paths, and

a programmable pneumatic actuator to hold the cassette and selectively apply pneumatic force to the valves and pump stations in response to a control program to place the first pump station in flow communication with any fluid flow path and the second pump station in flow communication with any fluid flow path, the system being configured to simultaneously place two of the pump stations in flow communication with the blood separation device while simultaneously placing the third pump station in flow communication with a venipuncture.

17 (Not Amended). A system according to claim 16

wherein a first pump station is placed in communication with an inlet of the blood separation device while a second pump station is placed in simultaneous communication with an outlet of the blood separation device.

18 (Not Amended). A system according to claim 16

wherein the programmable pneumatic actuator selectively applies pneumatic force to the valves and third pump station to direct fluid flow through the third pump station in either a direction away from the venipuncture or a direction toward the venipuncture.

19 (Not Amended). A system according to claim 16

wherein the programmable pneumatic actuator selectively applies pneumatic force to the valves and pump stations to direct fluid flow through any selected pump station in either a forward direction between two valves, or a reverse direction between two valves, or an in-out direction through a single valve.

20 (Not Amended). A system according to claim 16

further including a controller having a first selectable control program to direct the pneumatic actuator to apply pneumatic force to the valves and pump stations to perform a first blood separation procedure, the controller having a second selectable control program to direct the pneumatic actuator

to apply pneumatic force to the valves and pump stations to perform a second blood separation procedure different than the first blood separation procedure, whereby the preformed pump stations, preformed fluid flow paths, and preformed valves in the cassette can accommodate different blood processing procedures.

21 (Not Amended). A system according to claim 16

wherein the pneumatic actuator selectively applies both positive pressure and negative pressure to the valves and pump stations.

22 (Not Amended). A system according to claim 16

wherein the pneumatic actuator selectively applies positive pressure to close the valves and negative pressure to open the valves.

23 (Not Amended). A system according to claim 16

wherein the pneumatic actuator selectively applies positive pressure to expel fluid from the pump stations and negative pressure to draw fluid into the pump stations.

24 (Not Amended). A system according to claim 16

wherein at least one of the pump stations includes first and second pump chambers operating in tandem in response to the application of pneumatic force.

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25 (Once Amended). A programmable blood processing system coupled to a blood separation device comprising

a cassette containing first and second and third preformed, pneumatically actuated pump stations, more than three preformed fluid flow paths, and more than three preformed, pneumatically actuated valves in the fluid flow paths, and

a programmable pneumatic actuator to hold the cassette and selectively apply pneumatic force to the valves and pump stations in response to a control program to place the first, second, and third pump stations in communication with any fluid flow path, the system being configured to place the first pump station in communication with an inlet of a blood separation device to supply blood to the separation device for separation into components, to place the second pump station in communication with an outlet of the blood separation device to withdraw a blood component from the blood separation device, and to place the third pump station in communication with a venipuncture to supply and return blood to a donor.

26 (Once Amended). A system according to claim 25

wherein the programmable pneumatic actuator selectively applies pneumatic force to the valves and first, second and third pump stations to simultaneously supply blood to and withdraw blood from the separation device.

27 (Not Amended). A system according to claim 25

wherein the programmable pneumatic actuator selectively applies pneumatic force to the valves and pump stations to supply blood to or withdraw blood from the separation device while blood is supplied from or returned to the donor.

28 (Not Amended). A system according to claim 25

wherein the programmable pneumatic actuator selectively applies pneumatic force to the valves and pump stations to place a fourth pump station in communication with a source of anticoagulant for mixing with blood.

29 (Not Amended). A system according to claim 25

wherein the programmable pneumatic actuator selectively applies pneumatic force to the valves and third pump station to place the third pump station in communication with a source of fluid for mixing with blood.

30 (Not Amended). A system according to claim 25

further including a controller having a first selectable control program to direct the pneumatic actuator to apply pneumatic force to the valves and pump stations to perform a first blood separation procedure, the controller having a second selectable control program to direct the pneumatic actuator to apply pneumatic force to the valves and pump stations to perform a second blood separation procedure different than the first blood separation procedure, whereby the preformed pump stations, preformed fluid flow paths, and preformed valves in the cassette can accommodate different blood processing procedures.

31 (Not Amended). A system according to claim 25

wherein the pneumatic actuator selectively applies both positive pressure and negative pressure to the valves and pump stations.

32 (Not Amended). A system according to claim 25

wherein the pneumatic actuator selectively applies positive pressure to close the valves and negative pressure to open the valves.

33 (Not Amended). A system according to claim 25

wherein the pneumatic actuator selectively applies positive pressure to expel fluid from the pump stations and negative pressure to draw fluid into the pump stations.

34 (Not Amended). A system according to claim 25

wherein at least one of the pump stations includes first and second pump chambers operating in tandem in response to the application of pneumatic force.

35 (Once Amended). A blood processing method comprising the steps of

providing a cassette containing first and second preformed, pneumatically actuated pump stations, more than two preformed fluid flow paths, and more than two preformed, pneumatically

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actuated valves in the fluid flow paths, whereby the first pump station may be placed in flow communication with any fluid flow path and the second pump station may be placed in flow communication with any fluid flow path, and

placing the cassette in association with a pneumatic actuator to selectively apply pneumatic force to the valves and pump stations,

providing a first selectable control program to operate the pneumatic actuator to perform a first desired blood processing procedure using the cassette including conveying blood through a separation device for separation into a first component part, at least a portion of which is collected, and

providing a second selectable control program to operate the pneumatic actuator to perform a second desired blood processing procedure using the cassette including conveying blood through a separation device for separation into a second component part, at least a portion of which is collected.

36 (Not Amended). A blood processing method according to claim 35 wherein the first component part includes red blood cells.

37 (Not Amended). A blood processing method according to claim 35 wherein the second component part includes plasma.

38 (Not Amended). A blood processing method according to claim 35 further including the step of providing a third selectable control program to operate the pneumatic actuator to perform a third desired blood processing procedure using the cassette including conveying blood through a separation device for separation into first and second component parts, at least a portion of which are collected.